

Frequently Asked Questions and Answers: Lower Esopus Consent Order

Question 1. Has New York City (City) complied with the specifications of the Proposed Consent Order since the City executed it in May 2012, and thereafter circulated for public comment?

Answer 1. Yes. The City submitted an application to modify the State Clean Water Act permit, SPDES Permit No. NY 026 4652 ("Cat-Alum Permit). The Cat-Alum Permit authorizes the addition of the chemical flocculent "alum" (aluminum sulfate) into the Catskill Aqueduct to remove suspended sediments, or turbidity, from the water. Among other things, this DEC authorization is conditioned upon the City continuing to work to achieve the goals of turbidity reduction and reduced alum usage. Also, the City is required to perform an environmental impact analysis to comprehensively assess the potential impacts (biological, chemical, and physical) from a number of actions including water releases from the Ashokan Reservoir Release Channel (Release Channel) to the Lower Esopus Creek.

Question 2. In the current draft Consent Order, will the City pay a penalty?

Answer 2. Yes. The proposed penalty is for violating the Cat-Alum Permit by releasing water from October 7, 2010 to January 28, 2011 without DEC's prior approval. Under the Consent Order the City will pay a civil penalty in the amount of Two Million, Seven Hundred and Forty Thousand Dollars (\$2,740,000). One Hundred Thousand Dollars (\$100,000) of this sum is payable to New York State. Two Million, Six Hundred and Forty Thousand Dollars (\$2,640,000) of this sum will be employed to undertake Environmental Benefit Projects (EBPs). [Under the Consent Order but not as a "penalty," the City will also complete two additional stream restoration projects in the Ashokan Reservoir's watershed (at a cost of \$750,000) to assist in reducing turbidity at its source – see, Q&A #20 for discussion of additional turbidity reduction measures in the Upper Esopus under the draft Filtration Avoidance Determination.] The EBPs are environmental improvement projects designed to address impacts that may be associated with turbidity and alum usage as follows:

(A) Stream Gauges. \$350,000 will be provided to the United States Geological Survey (USGS) to support stream gauges. These funds will be used by USGS in accordance with a separate agreement to be entered between the City and USGS within one year after the effective date of the Consent Order. The funds will be used to add water quality monitoring capacity to the Mt. Marion gauge and to install a new gauge at Lomontville. The funding to maintain those gauges will extend over ten years from the date they are installed.

(B) Stream Management Plan. The sum of \$200,000 will be provided to develop a stream management plan for the Lower Esopus. Similar plans have been developed by the City and local community for major streams within the New York City Watershed.

(C) Lower Esopus Creek Projects. The sum of \$2 million will be allocated toward Lower Esopus Creek projects, including the implementation of highly rated projects identified through the stream management planning process.

(D) Fish Stocking: The sum of \$10,000 will be provided to support fish stocking in the Lower Esopus.

(E) Consultant Services: The sum of \$80,000 will be provided to support consulting services for Ulster County and other stakeholders during the environmental impact statement review process.

Question 3. Why is Ulster County named as a potential fiduciary to administer environmental benefit projects?

Answer 3. Ulster County Executive Mike Hein was a strong representative of his community throughout this process and an advocate for local needs. The Ashokan Reservoir and the Lower Esopus Creek are located in Ulster County.

Question 4. Why is the Hudson River Foundation named (in addition to Ulster County) as a potential fiduciary to administer the environmental benefit projects?

Answer 4. The Hudson River Foundation for Science and Environmental Research, Inc., is a not-for profit corporation which has administered funds for capital construction, development, and improvement projects to enhance public use and enjoyment of natural, scenic and cultural resources in the Hudson River watershed. As an organization with a proven track record for completing successful environmental projects, it is well-equipped to serve as a fiduciary to hold Environmental Benefit Project Funds and distribute them for the purposes specified in the Consent Order.

Question 5. Is the City liable for stipulated penalties if it violates any of the provisions of this Order?

Answer 5. Yes.

Question 6. When will the Order become effective against the City?

Answer 6. The Order is effective the day it is signed by the DEC Commissioner.

Question 7. How long will the Order be in effect?

Answer 7. The Order will be in effect until each of the following conditions has been fully satisfied: the City's payment of penalties and funding of the Environmental Benefit Project funds; and the City's written certification and DEC's written verification of completion of each requirement of the order.

Question 8. What is the Interim Release Protocol (IRP) and why is it included in the Consent Order?

Answer 8. The IRP is a program to govern the release of water from the Ashokan Reservoir. This governs the use of a water Release Channel, mostly from the reservoir's western basin. Water releases can be made, as conditioned under the IRP, to serve drinking water quality purposes, aquatic habitat and flood mitigation, among other purposes. There is also a spillway, essentially a dam that can be over-topped during times of high water, on the eastern basin of the Ashokan Reservoir. Both the Release Channel and spill way, when operating, send water toward the Lower Esopus Creek. The Consent Order includes a comprehensive, enforceable, IRP.

Deviations from the IRP without DEC's consent constitute a violation of the Consent Order. The Consent Order provided the most expeditious way to make the IRP enforceable. Details concerning the IRP and the use of the Release Channel are presented in the following Q&A's.

Question 9. Is the City still using the Release Channel?

Answer 9. For over two years the City has made releases through the Release Channel as described in the IRP (that was developed previously) and which is being modified under this revised Consent Order in response to public comment. During these two years, however, the City has made no releases for the purposes of keeping turbid water from entering the water supply system (which are called “operational” releases in the IRP). During this time period, all releases from the Release Channel have been to: (1) create void spaces in the Ashokan Reservoir to help that attenuate peak flooding along the Lower Esopus Creek by capturing storm waters (these are called “spill mitigation releases” in the IRP), or (2) to enhance downstream aquatic habitat and recreational opportunities (these are called “community releases” in the IRP).

Question 10. Since the IRP is in the Consent Order, can it be modified?

Answer 10. Yes, The IRP explicitly allows for modifications to be made as additional modeling and impact assessments are performed, and as a result of monitoring and other lessons learned during its implementation, with input from the stakeholders.

Question 11. Have changes been made to the IRP in the updated Consent Order to address long term turbid releases through the Release Channel that may be needed for drinking water purposes after major storm events -- similar to what happened previously after Hurricane Irene?

Answer 11. Yes, the operational release protocol portion of the IRP has been modified to shorten the duration of turbid releases and require that clearer water be released to flush out turbidity, as presented in the tables below:

November 1 through April 30:

Turbidity	Duration	Comments
0-30 NTU	Unlimited	
>30-60 NTU	12 Days	At the end of the 12 day discharge provide a release of 200 MGD for 36 hours with water of a turbidity of 30 NTU or less (or the best available water that is substantially lower in turbidity from the reservoir) prior to resuming additional Operational Releases
>60-100 NTU	5 Days	At the end of the 5 day discharge provide a release of 200 MGD for with 36 hours of water of a turbidity of 30 NTU or less (or the best available water that is substantially lower in turbidity from the reservoir) prior to resuming additional Operational Releases
>100 NTU	(see Note 1)	

Note 1: The release of water with turbidity >100 NTU shall be allowed only on those days where the Esopus Creek, flowing in to the Ashokan Reservoir, has turbidity >100 NTU. If releases are

being made and the turbidity of the Esopus Creek flowing into the Ashokan reservoir drops below 100 NTU, DEP shall commence ramping down the releases rate on the next day and shall cease the release as soon as practicable (considering ramping rate requirements contained herein) after the turbidity in the creek fell below such threshold. DEP shall conduct daily turbidity monitoring for the period during which such releases are being made.

May 1 through October 31:

Turbidity	Duration	Comments
0-30 NTU	Unlimited	
>30 NTU	(See Note 1)	

Note 1: The release of water with turbidity >30 NTU shall be allowed only on those days where the Esopus Creek, flowing in to the Ashokan Reservoir, has turbidity >30 NTU. If releases are being made and the turbidity of the Esopus Creek flowing into the Ashokan Reservoir drops below 30 NTU, DEP shall commence ramping down the releases rate on the next day and shall cease the release as soon as practicable (considering ramping rate requirements contained herein) after the turbidity in the creek fell below such threshold. DEP shall conduct daily turbidity monitoring for the period during which such releases are being made.

Additionally, the spill mitigation portion of the IRP has been modified to shorten the duration of turbid releases and require that clearer water be released to flush out turbidity, as presented in the tables below:

July 1 through May 1

Turbidity	Duration	Comments
0-30 NTU	Unlimited	
>30-60 NTU	12Days	At the end of the 12 day discharge provide a release of 200 MGD for 36 hours of water with a turbidity of 30 NTU or less (or best available water that is substantially lower in turbidity from the reservoir) prior to resuming additional Spill Mitigation Releases
> 60 NTU	5 Days	At the end of the 5 day discharge provide a release of 200 MGD for 36 hours of water with a turbidity of 30 NTU or less (or best available water that is substantially lower in turbidity from the reservoir) prior to resuming additional Spill Mitigation Releases

The bottom, middle, and surface water data provided in the Upper Esopus/Ashokan Reservoir/ water quality report that the City (NYCDEP) provides on a weekly basis includes information that allows for a determination of whether NYCDEP is making adequate efforts to make releases that comport with the IRP.

Question 12. What has been the quality of water flowing from the Release Channel since the effects of Hurricane Irene receded?

Answer 12. For the last 18 months, water quality in the Release Channel has been good, consistently less 30 NTUs. Over this past summer, water quality has been consistently less than 10 NTUs. Compare that with the period following Hurricane Irene when the turbidity in the Release Channel ranged from almost 300 NTUs at its peak, dropping over a period of 5 months to levels less than 30 NTUs (NTUs are a measurement of the cloudiness of water).

Question 13. What is the basis for the criteria in the IRP?

Answer 13. The IRP is based on scientific studies of the aquatic habitat of Esopus Creek which were used to establish the release requirements contained in the Shandaken Tunnel SPDES permit, as well as the research and analysis upon which a NYC DEP developed the operational support tool (to manage water supply operations, as well as experiences gained through reservoir release protocols for the Cannonsville, Neversink and Pepacton Reservoirs for the Delaware River watershed.

Question 14. Is it possible to increase the rate of the community releases above the current levels?

Answer 14. Yes, modified community releases are an alternative that DEC expects will be addressed through the environmental review process.

Question 15. What does the Consent Order require for flood mitigation?

Answer 15. The current program is intended to maximize flood mitigation by creating void space in the Ashokan Reservoir without reducing public water supply. While the negative impacts of flooding can never be fully eliminated, the amount of flood damage is storm-specific and dependent on a large number of factors. These reservoir voids will generally reduce the impact of downstream flooding, in addition to the flood attenuation that is provided by the reservoir even when it is full.

For example, despite the extreme nature of Hurricane Irene, the Ashokan Reservoir provided flood mitigation benefits to down stream areas along the Lower Esopus Creek that were affected by the storm. At the time of Irene's arrival on August 27, 2011, the Ashokan Reservoir was filled to approximately 94% of its storage capability (leaving a 6% void). The peak stream flow observed in the Lower Esopus Creek at Mount Marion was 25,200 cfs, less than 1/3 of the peak observed on the Upper Esopus Creek, upstream of the Reservoir.

Question 16. Does the Order require the City to design a program and ultimately remove the alum which it has previously discharged through the Catskill Aqueduct and which settles on the floor of the Kensico Reservoir?

Answer 16. Yes. The City is required to ultimately remove the alum floc associated with the City's use of alum since 2005.

Question 17. Why does the Order require a State Environmental Quality Review (SEQRA) process to assist DEC in determining the appropriate conditions under which water may be released through the Release Channel?

Answer 17. DEC is going to review a range of options to optimize the releases from the Ashokan Reservoir, taking into account a range of important interests. This review will result in an updated Cat-Alum Permit. SEQRA is a State law that the Legislature enacted to ensure that the protection and enhancement of environmental, human, and community resources is given appropriate weight along with social and economic considerations in public policy so that environmental considerations are factored into decisions on activities that may have a significant environmental effect.

Question 18. How will the SEQRA process assist the DEC Commissioner in evaluating the optimal conditions for releasing water through the Release Channel?

Answer 18. In accordance with SEQRA's process, which specifically requires that the public to be informed and provided with opportunities to participate, DEC will identify and evaluate the IRP (or any successor revision) and the Interim Monitoring Plan. The EIS will include an analysis of alternative methods of operating the Catskill Water Supply System (including a comparative analysis of the potential adverse and beneficial impacts for each alternative) in the following categories:

- No-Action Alternative (no permit modification);
- Reasonable alternatives for operation of the Ashokan Reservoir including but not limited to operation of the Release Channel in accordance with the IRP and any future amendments; and
- Reasonable alternatives for operation of the Catskill Aqueduct including but not limited to:
 - Options to discharge water from the Catskill Aqueduct prior to its reaching the Kensico Reservoir; and
 - Reasonable alternatives for operation of the Kensico Reservoir.

As part of a program to continue the use the Release Channel, the City will present a future monitoring plan that includes any or all of the following elements: temperature, turbidity, total suspended solids, biomonitoring, physical geomorphic factors, and flow data. A monitoring plan will propose monitoring locations, including biological monitoring locations at any or all of the following locations: the Esopus Creek above the Ashokan Reservoir, within the Ashokan Reservoir, the Release Channel discharge, and at appropriate sites downstream between the Release Channel discharge and the Hudson River.

Question 19. Does the Consent Order include provisions to address damages to downstream property owners who believe they were impacted from releases from the Ashokan Reservoir?

Answer 19. No, private damage claims are beyond the scope of the Consent Order.

Question 20. Does the Filtration Avoidance Determination include any provisions to address turbidity in the Ashokan Reservoir?

Answer 20. Yes, the recently proposed FAD continues to place emphasis on the Catskill Turbidity Control program. Among numerous other measures, the FAD will specify that seven major stream restoration projects to assist in reducing turbidity at the source be completed in the Ashokan Reservoir watershed. This is in addition to the two stream restoration projects specified in the Consent Order. Additional FAD efforts include:

\$15 million for a flood buy-out program. This program will include properties that fall outside of the FEMA flood buy-out eligibility criteria. Additional funds can be shifted to this program from a separate \$50 million land acquisition funding pool established for the entire Watershed under the FAD if flood buy-outs requests exceed the \$15 million allotment.

\$17 million to support a local flood hazard mitigation grant program (structure relocation, flood proofing, elevation, flood plain reclamation).

\$20.6 million increase for the County Soil and Water Conservation Districts to address erosion and stream stabilization and local flood hazard mitigation planning and projects.

\$23 million for Watershed Agricultural Council farm conservation easements.

\$6 million for Watershed Agricultural Council forestry conservation.

Nine stormwater retrofit projects annually, with potential funding available at approximately \$3.6 million.

These on-going programs involve additional measures that will have an impact on the water quality in the Ashokan Reservoir and Lower Esopus Creek.

Question 21. Will the public be involved in decision making related to the SEQRA and permit modification process?

Answer 21. Yes, DEC has committed to a full SEQRA process, acting as lead agency for the modification of the Cat-Alum Permit. As such, the draft scoping document, draft EIS and any DEC proposed SPDES permit modification will undergo a formal public notice and comment process and thoroughly review all reasonable alternatives.